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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/755,702
Filing Date: January 12, 2004
Appellant(s): KREBS, MICHAEL

John Harrelson, Jr.
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 4/22/08 appealing from the Office action mailed 8/24/07.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

WO 00/05290 BOLTE et al. 02-2000

Copy of translation supplied by appellant attached in appendix.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

A. Claims 1-2, 4-18, 21, 24, and 28-33 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 00/05290 Bolte et al., translation supplied by appellant referenced.

Bolte discloses a polyurethane prepolymer made by the instantly claimed processes at page 5, lines 3-7 which falls within the scope of the instant claim 12 when combined with page 17, lines 1-15; page 6, lines 10-30, which encompasses the instantly claimed viscosities of claim 2 considering viscosity will go down as temperature goes up and considering the common molecular weights of the instant claims and the prior art noted below which is indicative of viscosity by definition of viscosity average molecular weight; page 7, lines 5-9 which is expected to give the parameter of the instant claim 2 inherently based on the definition of viscosity average molecular weight and the fact that the other requirements of claim 2 are met and lines 10-30; page 8, lines 1-30, particularly 21-30 which broadly encompasses the instantly claimed process of making a polyurethane with free isocyanate groups; page 9, lines 1-5, which encompasses the instantly claimed NCO:OH ratio and this stage of the method of the reference reads on the method steps of the instant claim 1, which are not prohibited from later reactions in other stages as is clear from the instant claims which later react the prepolymer with other components; page 10, lines 1-30, particularly 6-8, which encompasses the instantly claimed NCO:OH ratios, lines 9-30, which encompasses the instantly claimed diols and their molecular weights as do page 11, lines 1-30, particularly 6-10; page 12, lines 1-30, particularly 2-3; page 13, lines 1-30, particularly 1; page 14, lines 1-19, of which these polyols fall within those of the instant claims 1, 4, 10, 14-17, 21, 24, and 28-31 (note that the mixtures encompass the "additional" polyols or polymeric compounds of claims 21 and 24); page 14, lines 20-30; page 15, line 7, which discloses the instantly claimed diisocyanate with sufficient specificity so as to

anticipate its use, which is particularly emphasized because it is also an assymetrical diisocyanate as is clearly preferred for use at lines 15-17 and 18-22; page 19, lines 22-27; page 20, lines 10-15 which falls within the scope of the NCO:OH ratios of the instant claims 1, 8, 18, 24, and 29-30, lines 17-30 which falls within the scope of the instant claims 11 and 21; page 21, lines 1-30 particularly 7-26 which falls within the scope of the instant claims 5-7, 9, and 21; page 25, lines 4-30 which encompasses the instantly claimed amounts of monomeric isocyanates also; page 26, lines 1-12 and 21-26; and the remainder of the document. The second stages disclosed throughout the above cited sections fall within the scope of the instant claims requiring further reaction of the prepolymer with further components including the instantly claimed NCO:OH ratios for these method steps. The above discussed parameters are the same as claim 1 and therefore must give the limitation of claim 13 and 32-33 inherently considering the molecular weights of the polyurethanes and their NCO content based on the ratios of polyols to polyisocyanates used. Appellant's argument regarding free NCO groups is noted but the reference teaches the preparation of prepolymers having NCO groups throughout the disclosure of Bolte, e.g. page 6, lines 17-21, page 7, lines 5, 10-16 and 23-30 with particular emphasis on lines 27-30; page 8, lines 1-2, particularly lines 21-25 noting "at least equimolar" as it is understood that an excess is required to give NCO terminal groups but too much excess will give too much free monomer, which Bolte clearly doesn't desire and the stoichiometry required of the paragraph bridging pages 7-8 indicates clearly that no or little free monomeric isocyanate should remain. It is noted that the instant claims recite no closed language and therefore include the additional steps of the reference. It is also noted that claim 24 appears to encompass further reacting the isocyanate terminated component with further active H groups which is the

additional reaction step of Bolte. In any event, the intermediate product of Bolte which is the reaction product of polyisocyanates of the instant claims, polyol, the instantly claimed NCO:OH ratio and which has free NCO groups, i.e. prepolymer, falls within the scope of the instant claims as does the further reaction of this intermediate with further polyol. The remainder of the reference cited above further clarifies these points. The appellant's arguments are not commensurate in scope with the instant claims and the proper reading of the disclosure of Bolte.

"Consisting of" is noted in the instant claims. The instantly claimed product is not going to not be further processed. It is intended by the appellant to be further reacted, perhaps at a later time. Thus, "consisting of" cannot be taken as meaning that nothing is ever done to the product resulting from the claimed process ever. Note the first page of the appellant's specification, lines 8-11 for example. The reference performs the instantly claimed process steps in a manner consistent with the instantly claimed "consisting of" though they later perform other steps. The result of the process noted above is a "reactive polyurethane containing free isocyanate groups" as can be seen from the above cited sections. It is not seen that the reference requires two steps. The appellant's reference to page 5, lines 24-30 is noted but the examiner notes line 24, "a polyurethane polymer containing at least two isocyanate groups or…" is the first of the list of alternatives which is a reactive polyurethane containing free isocyanate groups. The examiner further notes page 6, lines 17-21 which requires only reacting the polyol with an at least diisocyanate to form the prepolymer which falls within the scope of the instant claims. There is no second stage here which is not the same as the appellant's intended further use of the instantly claimed prepolymer. Thus, "consisting" does not differentiate over the reference since the reference teaches the instantly claimed method. Other processes of the reference do use two

stages but these are not sections cited as anticipating the instantly claimed method and the appellant's arguments do not address those methods of the sections cited above which do fall within the scope of the instant claims. The ordinary skilled artisan does consider the two different NCO of the 2,4' MDI as being different NCO groups due to their different reactivities and chemical nature. There is no probative evidence that only one of the types of NCO will react with the OH of the polyol to support the appellant's argument in this regard. It is not seen that the reaction rates of the different NCO groups are so different that in the huge number of functional groups in a real life reaction both types of NCO do not react with OH. Bolte does note require "two different isocyaantes" as argued by the appellant. Bolte merely requires "different isocyanate groups", e.g. page 8, lines 1-2. The NCO groups of the instantly claimed and the disclosed isocyanate 2,4' MDI are in fact different as would be understood by the ordinary skilled artisan. Note page 15, line 15 et seq. in this regard. Appellant's arguments regarding page 7, lines 10-22, page 8, line 26 to page 9, line 30 is noted but these sections are not the entirety of the disclosure of the reference nor the entirety of the sections cited above. See, for example, page 7, lines 23-30 and page 14, lines 20-26 which makes the instantly claimed intermediate.

The appellant's arguments have been fully considered but are not commensurate with the above rejection and the disclosure of the cited prior art and are not persuasive for the reasons stated above. This rejection should therefore be maintained.

B. Claims 1-2, 4-18, 21, 24, and 28-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/05290 Bolte et al., translation supplied by appellant referenced.

Bolte discloses a polyurethane prepolymer made by the instantly claimed processes at page 5, lines 3-7 which falls within the scope of the instant claim 12 when combined with page 17, lines 1-15; page 6, lines 10-30, which encompasses the instantly claimed viscosities of claim 2 considering viscosity will go down as temperature goes up and considering the common molecular weights of the instant claims and the prior art noted below which is indicative of viscosity by definition of viscosity average molecular weight; page 7, lines 5-9 which is expected to give the parameter of the instant claim 2 inherently based on the definition of viscosity average molecular weight and the fact that the other requirements of claim 2 are met and lines 10-30; page 8, lines 1-30, particularly 21-30 which broadly encompasses the instantly claimed process of making a polyurethane with free isocyanate groups; page 9, lines 1-5, which encompasses the instantly claimed NCO:OH ratio and this stage of the method of the reference reads on the method steps of the instant claim 1, which are not prohibited from later reactions in other stages as is clear from the instant claims which later react the prepolymer with other components; page 10, lines 1-30, particularly 6-8, which encompasses the instantly claimed NCO:OH ratios, lines 9-30, which encompasses the instantly claimed diols and their molecular weights as do page 11, lines 1-30, particularly 6-10; page 12, lines 1-30, particularly 2-3; page 13, lines 1-30, particularly 1; page 14, lines 1-19, of which these polyols fall within those of the instant claims 1, 4, 10, 14-17, 21, 24, and 28-31 (note that the mixtures encompass the "additional" polyols or polymeric compounds of claims 21 and 24); page 14, lines 20-30; page 15, line 7, which discloses the instantly claimed diisocyanate with sufficient specificity so as to anticipate its use, which is particularly emphasized because it is also an assymetrical diisocyanate as is clearly preferred for use at lines 15-17 and 18-22; page 19, lines 22-27; page

20, lines 10-15 which falls within the scope of the NCO:OH ratios of the instant claims 1, 8, 18, 24, and 29-30, lines 17-30 which falls within the scope of the instant claims 11 and 21; page 21, lines 1-30 particularly 7-26 which falls within the scope of the instant claims 5-7, 9, and 21; page 25, lines 4-30 which encompasses the instantly claimed amounts of monomeric isocyanates also; page 26, lines 1-12 and 21-26; and the remainder of the document. The second stages disclosed throughout the above cited sections fall within the scope of the instant claims requiring further reaction of the prepolymer with further components including the instantly claimed NCO:OH ratios for these method steps. The above discussed parameters are the same as claim 1 and therefore must give the limitation of claim 13 and 32-33 inherently considering the molecular weights of the polyurethanes and their NCO content based on the ratios of polyols to polyisocyanates used. Appellant's argument regarding free NCO groups is noted but the reference teaches the preparation of prepolymers having NCO groups throughout the disclosure of Bolte, e.g. page 6, lines 17-21, page 7, lines 5, 10-16 and 23-30 with particular emphasis on lines 27-30; page 8, lines 1-2, particularly lines 21-25 noting "at least equimolar" as it is understood that an excess is required to give NCO terminal groups but too much excess will give too much free monomer, which Bolte clearly doesn't desire and the stoichiometry required of the paragraph bridging pages 7-8 indicates clearly that no or little free monomeric isocyanate should remain. It is noted that the instant claims recite no closed language and therefore include the additional steps of the reference. It is also noted that claim 24 appears to encompass further reacting the isocyanate terminated component with further active H groups which is the additional reaction step of Bolte. In any event, the intermediate product of Bolte which is the reaction product of polyisocyanates of the instant claims, polyol, the instantly claimed NCO:OH

ratio and which has free NCO groups, i.e. prepolymer, falls within the scope of the instant claims as does the further reaction of this intermediate with further polyol. The remainder of the reference cited above further clarifies these points. The appellant's arguments are not commensurate in scope with the instant claims and the proper reading of the disclosure of Bolte.

"Consisting of" is noted in the instant claims. The instantly claimed product is not going to not be further processed. It is intended by the appellant to be further reacted, perhaps at a later time. Thus, "consisting of" cannot be taken as meaning that nothing is ever done to the product resulting from the claimed process ever. Note the first page of the appellant's specification, lines 8-11 for example. The reference performs the instantly claimed process steps in a manner consistent with the instantly claimed "consisting of" though they later perform other steps. The result of the process noted above is a "reactive polyurethane containing free isocyanate groups" as can be seen from the above cited sections. It is not seen that the reference requires two steps. The appellant's reference to page 5, lines 24-30 is noted but the examiner notes line 24, "a polyurethane polymer containing at least two isocyanate groups or…" is the first of the list of alternatives which is a reactive polyurethane containing free isocyanate groups. The examiner further notes page 6, lines 17-21 which requires only reacting the polyol with an at least diisocyanate to form the prepolymer which falls within the scope of the instant claims. There is no second stage here which is not the same as the appellant's intended further use of the instantly claimed prepolymer. Thus, "consisting" does not differentiate over the reference since the reference teaches the instantly claimed method. Other processes of the reference do use two stages but these are not sections cited as anticipating the instantly claimed method and the appellant's arguments do not address those methods of the sections cited above which do fall

within the scope of the instant claims. The ordinary skilled artisan does consider the two different NCO of the 2,4' MDI as being different NCO groups due to their different reactivities and chemical nature. There is no probative evidence that only one of the types of NCO will react with the OH of the polyol to support the appellant's argument in this regard. It is not seen that the reaction rates of the different NCO groups are so different that in the huge number of functional groups in a real life reaction both types of NCO do not react with OH. Bolte does note require "two different isocyaantes" as argued by the appellant. Bolte merely requires "different isocyanate groups", e.g. page 8, lines 1-2. The NCO groups of the instantly claimed and the disclosed isocyanate 2,4' MDI are in fact different as would be understood by the ordinary skilled artisan. Note page 15, line 15 et seq. in this regard. Appellant's arguments regarding page 7, lines 10-22, page 8, line 26 to page 9, line 30 is noted but these sections are not the entirety of the disclosure of the reference nor the entirety of the sections cited above. See, for example, page 7, lines 23-30 and page 14, lines 20-26 which makes the instantly claimed intermediate.

Though Bolte et al. is not limited to its examples, Bolte et al. does not exemplify the instantly claimed methods.

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to use the instantly claimed methods and ingredient combinations to make the prepolymer and compositions of the instant claims because they are encompassed by the reference and would have been expected to give the properties disclosed by Bolte. There is no showing of unexpected results stemming from any differences between the cited prior art and the instant claims in a manner commensurate in scope with the instant claims and the cited prior art

particularly with regard to the wide range of polyols encompassed by the instant claims and the cited prior art, their molecular weights, the NCO:OH ratios encompassed by the instant claims and the cited prior art, and the broad range of reaction conditions encompassed by the instant claims and the cited prior art which are expected to widely vary the properties of the polyurethanes made.

The appellant's arguments have been fully considered but are not commensurate with the above rejection and the disclosure of the cited prior art and are not persuasive for the reasons stated above. This rejection should therefore be maintained.

(10) Response to Argument

A. The following arguments apply to the appellant's arguments regarding the rejection of paragraph 9(A) above:

The appellant argues that the prior art does not disclose the instantly claimed diisocyanate particulars. At page 14, line 20 to page 15, line 9, the reference discloses making the polyurethane prepolymer having terminal isocyanate groups, referenced as "component A" by the reference, by reacting difunctional isocyanate and difunctional polyol in which the diisocyanate may be "diphenyl methane-2,4'-diisocyanate" solely (page 15, line 7), which coupled with the reference's description of how much NCO to OH is required to obtain the isocyanate terminated polyurethane prepolymer, gives the instantly claimed method with no additional steps nor ingredients during the time the instantly claimed inventions which recite only "consisting" are concerned with. See MPEP 2131.02, In re Petering, 301 F.2d 676, 133 USPQ 275 (CCPA 1962).

In In re Petering, the prior art disclosed a generic chemical formula "wherein X, Y, Z, P,

and R'- represent either hydrogen or alkyl radicals, R a side chain containing an OH group." The court held that this formula, without more, could not anticipate a claim to 7-methyl-9-[d, l'-ribityl]-isoalloxazine because the generic formula encompassed a vast number and perhaps even an infinite number of compounds. However, the reference also disclosed preferred substituents for X, Y, Z, >P,< R, and R' as follows: where X, P, and R' are hydrogen, where Y and Z may be hydrogen or methyl, and where R is one of eight specific isoalloxazines. The court determined that this more limited generic class consisted

of about 20 compounds. The limited number of compounds covered by the preferred formula in combination with the fact that the number of substituents was low at each site, the ring positions were limited, and there was a large unchanging structural nucleus, resulted in a finding that the reference sufficiently described "each of the various permutations here involved as fully as if he had drawn each structural formula or had written each name." **The claimed compound was 1 of these 20 compounds. Therefore, the reference "described" the claimed compound and the reference anticipated the claims.**

Based on the situation in In re Petering, it is the examiner's position that the diphenyl methane-2,4'-diisocyanate is anticipatory since it is one of 17 isocyanates which would have been readily envisioned for use in the disclosed polyurethane prepolymers, particularly when considered with the disclosures describing the use of isocyanates having differently reactive NCO groups by Bolte et al., i.e. assymetrical isocyanates. Furthermore, the smaller group of preferred assymetrical diisocyanates of Bolte et al. of page 15, lines 15-17 and 18-22 further

limits the group of disclosed isocyanates of Bolte et al. making the choice of diphenyl methane-2,4'-diisocyanate be from a smaller group of preferred isocyanates since its hindered 2-isocyanate will clearly react at a different rate than the non-hindered 4-isocyanate group.

The instantly claimed NCO:OH ratio is disclosed, as stated in the above rejection, particularly at page 20, lines 10-15, as well as in the other cited sections. The amount of monomeric assymetrical diisocyanate monomer of the instant claims is encompassed throughout the document, as discussed in the above rejection, particularly at page 25, lines 19-27, which considering the toxicity of such isocyanates (Bolte et al., page 2, lines 8 et seq.) the ordinary skilled artisan would have used the lower amounts of monomeric isocyanate of Bolte et al., which falls within the scope of the instantly claimed amount of monomeric assymetric diisocyanate.

The appellant argues that the recitation of "consisting" in the instant claims excludes any element, step, or ingredient not specified in the claim. In method claims, this is taken as applying to the time period during which the claimed method is concerned. Clearly, the method is required to have a use by 35 USC 101. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

One would not perform only the claimed steps and then stop forever. This would not be "useful" as required by 35 USC 101 and would in fact be wasteful. Furthermore, the ingredients had to be manufactured, purified, packaged, shipped, procured, etc. These additional steps are necessarily required for the claimed process to be possible. Furthermore, claim 28 of the appellant's application shows that the appellant does intend to perform further steps on the method which contains "consisting" at a later time.

The reference is concerned with having a low content of monomeric diisocyanates. The examiner notes page 5, lines 3-10 and page 25, lines 19-27, which encompasses the instantly claimed amounts of unreacted monomeric diisocyanate; page 6, lines 17-21 which defines the polyurethane prepolymer, disclosed therein, as being the reaction of polyol and diisocyanate, with no other steps being required, which meets the instantly claimed "consisting" relative to the time period of the instant claims which make the same "prepolymer" as made in a fair reading of Bolte et al., as discussed above.

The additional stages fall within the scope of the use of the prepolymer of the instant claims directed to a polyurethane containing free isocyanate groups of the instant claims reciting "consisting", e.g. claim 1 required by 35 USC 101 such as the processes of the instant claim 28, with "comprising" thereof also including the additional isocyanates and polyols of Bolte et al. and claim 18 of Bolte et al. and the other sections thereof cited in the above rejection disclosing the additional polyol of the instant claim 28. Claim 28 of the appellant is evidence that the argued one step process of the instant claim 1 is intended to be further processed as occurs in Bolte et al.. As such, the process of making the prepolymer of Bolte et al. by reacting the instantly claimed polyisocyanate and polyol in the instantly claimed amount, all encompassed by Bolte et al. as discussed above, is the instant claim 1 because no other steps are required by Bolte et al. during the time for which the instant claim 1 is concerned, e.g. during the making of the prepolymer of Bolte et al., which encompasses the instantly claimed polyurethane having free isocyanate groups of the instant claim 1, as discussed above in detail.

The rejection of claims 21, 24, and 28 as well as the claims which depend from these claims and claim 1 should be maintained for the same reasons. Additionally, it is again noted

that claim 28 recites "comprising" and therefore includes the additional steps of Bolte et al., though, for the reasons stated above, Bolte's manufacture of their disclosed polyurethane prepolymer meets "consisting" in claim 28 regarding making the polyurethane having free isocyanate groups recited therein for the reasons stated above regarding claim 1.

B. The following arguments apply to the appellant's arguments regarding the rejection of paragraph 9(A) above:

The appellant argues that the prior art does not disclose the instantly claimed diisocyanate particulars. At page 14, line 20 to page 15, line 9, the reference discloses making the polyurethane prepolymer having terminal isocyanate groups, referenced as "component A" by the reference, by reacting difunctional isocyanate and difunctional polyol in which the diisocyanate may be "diphenyl methane-2,4'-diisocyanate" solely (page 15, line 7), which coupled with the reference's description of how much NCO to OH is required to obtain the isocyanate terminated polyurethane prepolymer, gives the instantly claimed method with no additional steps nor ingredients during the time the instantly claimed inventions which recite only "consisting" are concerned with. See MPEP 2131.02, In re Petering, 301 F.2d 676, 133 USPQ 275 (CCPA 1962).

In In re Petering, the prior art disclosed a generic chemical formula "wherein X, Y, Z, P, and R'- represent either hydrogen or alkyl radicals, R a side chain containing an OH group." The court held that this formula, without more, could not anticipate a claim to 7-methyl-9-[d, l'-ribityl]-isoalloxazine because the generic formula encompassed a vast number and perhaps even an infinite number of compounds. However, the reference also disclosed preferred substituents for X, Y, Z, >P,< R, and R' as follows: where X, P, and

R' are hydrogen, where Y and Z may be hydrogen or methyl, and where R is one of eight specific isoalloxazines. The court determined that this more limited generic class consisted

of about 20 compounds. The limited number of compounds covered by the preferred formula in combination with the fact that the number of substituents was low at each site, the ring positions were limited, and there was a large unchanging structural nucleus, resulted in a finding that the reference sufficiently described "each of the various permutations here involved as fully as if he had drawn each structural formula or had written each name." **The claimed compound was 1 of these 20 compounds. Therefore, the reference "described" the claimed compound and the reference anticipated the claims.**

Based on the situation in In re Petering, it is the examiner's position that the diphenyl methane-2,4'-diisocyanate is anticipatory since it is one of 17 isocyanates which would have been readily envisioned for use in the disclosed polyurethane prepolymers, particularly when considered with the disclosures describing the use of isocyanates having differently reactive NCO groups by Bolte et al., i.e. assymetrical isocyanates. Furthermore, the smaller group of preferred assymetrical diisocyanates of Bolte et al. of page 15, lines 15-17 and 18-22 further limits the group of disclosed isocyanates of Bolte et al. making the choice of diphenyl methane-2,4'-diisocyanate be from a smaller group of preferred isocyanates since its hindered 2-isocyanate will clearly react at a different rate than the non-hindered 4-isocyanate group.

The instantly claimed NCO:OH ratio is disclosed, as stated in the above rejection, particularly at page 20, lines 10-15, as well as in the other cited sections. The amount of

monomeric assymetrical diisocyanate monomer of the instant claims is encompassed throughout the document, as discussed in the above rejection, particularly at page 25, lines 19-27, which considering the toxicity of such isocyanates (Bolte et al., page 2, lines 8 et seq.) the ordinary skilled artisan would have used the lower amounts of monomeric isocyanate of Bolte et al., which falls within the scope of the instantly claimed amount of monomeric assymetric diisocyanate.

The appellant argues that the recitation of "consisting" in the instant claims excludes any element, step, or ingredient not specified in the claim. In method claims, this is taken as applying to the time period during which the claimed method is concerned. Clearly, the method is required to have a use by 35 USC 101. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

One would not perform only the claimed steps and then stop forever. This would not be "useful" as required by 35 USC 101 and would in fact be wasteful. Furthermore, the ingredients had to be manufactured, purified, packaged, shipped, procured, etc. These additional steps are necessarily required for the claimed process to be possible. Furthermore, claim 28 of the appellant's application shows that the appellant does intend to perform further steps on the method which contains "consisting" at a later time.

The reference is concerned with having a low content of monomeric diisocyanates. The examiner notes page 5, lines 3-10 and page 25, lines 19-27, which encompasses the instantly claimed amounts of unreacted monomeric diisocyanate; page 6, lines 17-21 which defines the polyurethane prepolymer, disclosed therein, as being the reaction of polyol and diisocyanate, with no other steps being required, which meets the instantly claimed "consisting" relative to the

time period of the instant claims which make the same "prepolymer" as made in a fair reading of Bolte et al., as discussed above.

The additional stages fall within the scope of the use of the prepolymer of the instant claims directed to a polyurethane containing free isocyanate groups of the instant claims reciting "consisting", e.g. claim 1 required by 35 USC 101 such as the processes of the instant claim 28, with "comprising" thereof also including the additional isocyanates and polyols of Bolte et al. and claim 18 of Bolte et al. and the other sections thereof cited in the above rejection disclosing the additional polyol of the instant claim 28. Claim 28 of the appellant is evidence that the argued one step process of the instant claim 1 is intended to be further processed as occurs in Bolte et al.. As such, the process of making the prepolymer of Bolte et al. by reacting the instantly claimed polyisocyanate and polyol in the instantly claimed amount, all encompassed by Bolte et al. as discussed above, is the instant claim 1 because no other steps are required by Bolte et al. during the time for which the instant claim 1 is concerned, e.g. during the making of the prepolymer of Bolte et al., which encompasses the instantly claimed polyurethane having free isocyanate groups of the instant claim 1, as discussed above in detail.

The rejection of claims 21, 24, and 28 as well as the claims which depend from these claims and claim 1 should be maintained for the same reasons. Additionally, it is again noted that claim 28 recites "comprising" and therefore includes the additional steps of Bolte et al., though, for the reasons stated above, Bolte's manufacture of their disclosed polyurethane prepolymer meets "consisting" in claim 28 regarding making the polyurethane having free isocyanate groups recited therein for the reasons stated above regarding claim 1.

The required elements of the above obviousness rejection are found within the prior art itself, which explicitly states that their method gives low free monomeric diisocyanate content that is within the scope of the instantly claimed amounts. There is not showing that is commensurate in scope with the instant claims and the cited prior art that the use the instantly claimed 2,4'-MDI, which is also disclosed by Bolte et al., as stated above, will give any unexpected results, particularly considering the full scope of NCO:OH ratios encompassed by the instant claims and the cited prior art as related to stage one of Bolte et al. which is the method of the instant claims where the instantly claimed diisocyanate, diol, NCO:OH ratio, and low monomeric diisocyanate, all of which are encompassed by Bolte et al., are used. The appellanht's arguments regarding "consisting" as it relates to making the instantly claimed polyurethane containing free isocyanate groups, e.g. the instant claim 1, is addressed above. The relevant portions of Bolte et al. concerning making the polyurethane prepolymer component A by reacting diol with the instantly claimed diisocyanate in the instantly claimed NCO:OH ratio and having the instantly claimed amount of unreacted monomeric diisocyanate are cited above. The appellant's arguments do not address all of these relevant sections cited above. Page 7, lines 23-30 and page 8, lines 1-2 are not the entirety of the disclosure of Bolte et al. relating to making their polyurethane prepolymer. The argument that the examiner's interpretation of Bolte is not supported by clear explanations of how such an embodiment is actually carried out ignores the above sections of Bolte cited by the examiner as they would be understood by the ordinary skilled artisan. The prior art is not required to have examples and the disclosure of Bolte would have been sufficient for the ordinary skilled artisan to have envisioned the instantly claimed inventions for the reasons given above. The examiner agrees that Bolte discloses multiple stage

reactions. However, they disclose reacting diol with the instantly claimed diisocyanate in the instantly claimed NCO:OH ratio to give the instantly claimed amount of free monomeric isocyanate in the sections above as stage one, which is the method of the instant claim 1 and the additional stages fall within the scope of the instant claim 28 particularly considering its recitation of "comprising". The examiner notes page 14, line 20 et seq., particularly "the corresponding polyol component is reacted with an at least difunctional isocyanate." It is noted that "an" clearly indicates "one". The applicant's arguments regarding two different reactive NCO groups is not commensurate in scope with the full disclosure of the reference nor with the way the ordinary skilled artisan would understand the argued section of Bolte et al., which would be to understand that one monomeric diisocyanate may have the different reactive NCO groups. See page 15, lines 15-22. The ordinary skilled artisan understands that one NCO group is hindered sterically and therefore reacts more slowly than the other non-hindered NCO group of these assymetrical isocyanates, which encompasses diphenyl methane-2,4'-diisocyanate of page 15, line 7.

The one stage reaction is expected to have less free NCO than the additional stages of the reference because the additional stages add more isocyanate which is expected to increase free monomeric isocyanate content. The appellant's arguments in this regard are therefore not persuasive and are not supported by probative evidence. The appellant's acknowledgement that Bolte discloses that their discussed lowered free monomeric isocyanate content is the result of the use of isocyanates having different reactivity is appreciated. The use of the isocyanates of Bolte et al., discussed above, having NCO groups of different reactivities on a single diisocyanate, e.g. diphenyl methane-2,4'-diisocyanate of page 15, line 7 is expected to give the

disclosed reduction of free monomeric isocyanate because it uses the means by which Bolte achieves this goal. It is expected to have less free monomeric isocyanate than the final product, e.g. that of stages 2 and 3, because it used less monomeric isocyanate than used in the later stages. The ordinary skilled artisan would understand, from proper reading of Bolte et al., that the more reactive NCO groups of the diisocyanate will react with the OH groups of the diol leaving the free unreacted slower reacting NCO groups and thereby minimizing "chain extension" which results in less free monomeric isocyanate being present as is clear from proper consideration of the stoichiometry of the reaction considering the NCO:OH ratio of the instant claims and Bolte regarding their prepoplymer.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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Appendix:

See attached copy of Bolte reference.